# Southwestern Bell Corporation EX PARTE OR LATE FILED

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September 9, 1994

Michael W. Bennett Director Federal Regulatory Ex Parte

Mr. William F. Caton Acting Secretary Federal Communications Commission 1919 M Street, N.W. Room 222 Washington, DC 20554

Re: CC Docket No. 94-32

Dear Mr. Caton:

In accordance with Commission rules, please be advised that yesterday, September 8th, David Wolter, Jeff Weber and the undersigned representing Southwestern Bell met with Richard Smith, Larry Petak and Steve Sharkey of the Office of Engineering and Technology regarding the proceeding listed above. Attached is a handout provided in the meeting.

If you have any questions, please let me know.

Sincerely,

Attachment

cc: Richard Smith

Larry Petak Steve Sharkey

1401 I Street, N.W. Suite 1100 Washington, DC 20005

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# FCC Ex Parte Viși Docket 94-32

Wireless Local Loo Southwestern Bell



Southwestern Bell Technology Resources

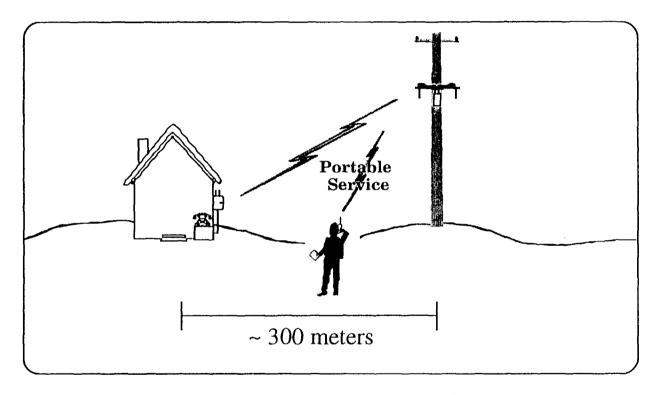
FCC Ex Parte - docket 94-32

### Agenda for Ex Parte

- What is Wireless Local Loop (WLL)?
- WLL Testbed in St. Louis
- Docket 94-32 Spectrum and WLL



#### Wireless Local Loop



Wireline Voice Quality Wireline Service Quality



#### Benefits of Wireless Local Loop

- Reduced capital requirement
- Minimizes stranded capital
- Addresses competition
- Reduced maintenance
- Rapid deployment
- Survivability and quick recovery
- Synergy with existing loop plant and future directions



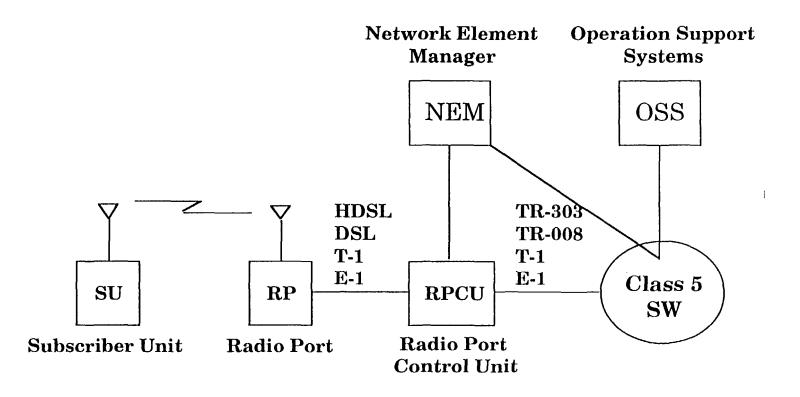
# Major Issues in Wireless Local Loop

- Voice Quality
- Cost
- Powering
- Architecture
- Spectrum
- Privacy/Security

- OAM&P
- Transparency
- Coverage and Capacity
- Air Interface
- Portability



#### WLL Architecture





#### Radio System Parameters

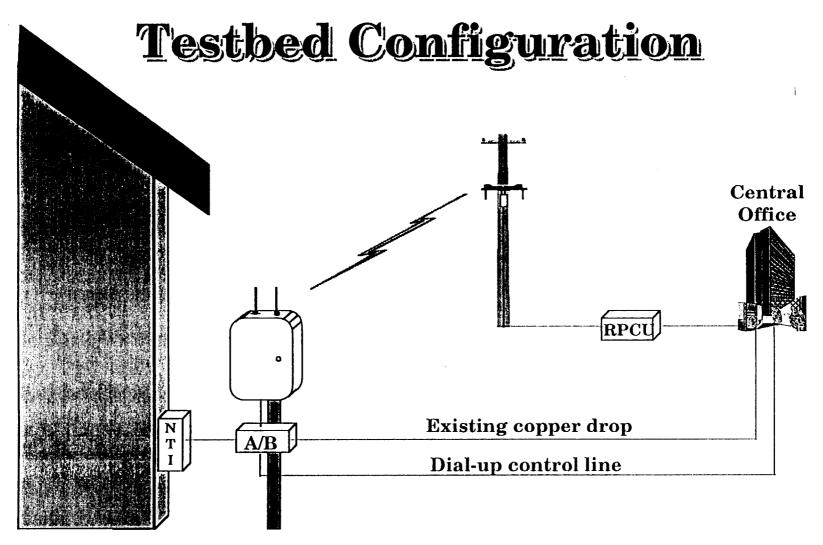
Parameter	Local Service
Access Method	TDM / TDMA / FDD
Channel Spacing	300 KHz
Speech Coder	32 Kbps ADPCM
TCH per Carrier	7 voice, 1 control
Channel Bit Rate	384 Kbps
Modulation	$\pi/4~\mathrm{DQPSK}$
FEC	No
Channel Delay	≤ 6 ms round trip



#### Radio Parameters Continued

Parameter	Local Service
Coverage	~ 300 meter radius
Antenna height (nom)	6 meters
Reuse pattern	16 (omni)
Frequency planning	Automatic, QSAFA
Authentication	Yes
Encryption	Yes
Required Bandwidth	10 MHz



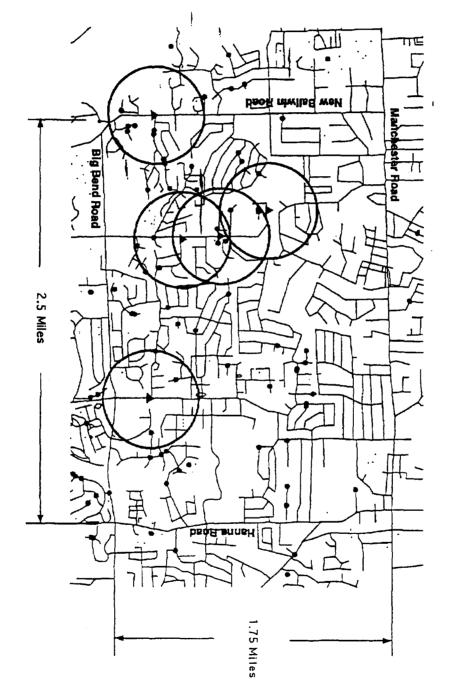




#### Goals of SWBT Testbed

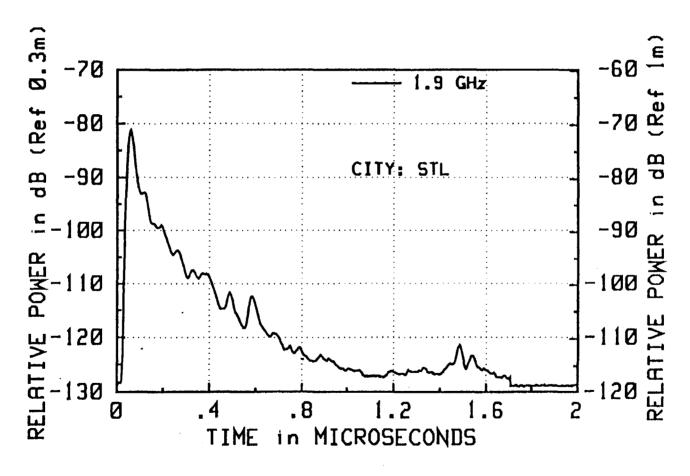
- Demonstrate WLL Feasibility
- Investigate Interference and Service Issues
- User Feedback on Quality/Transparency
- Specify and Integrate OAM&P
- Develop Deployment Guidelines
- Refine Economic Estimates







### Typical Power Delay Profile\*



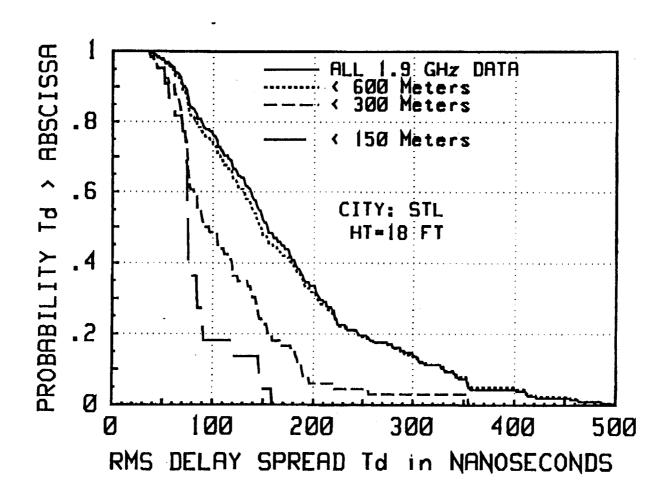


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\*Joint study with Bellcore

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### RMS Delay Spread Summary

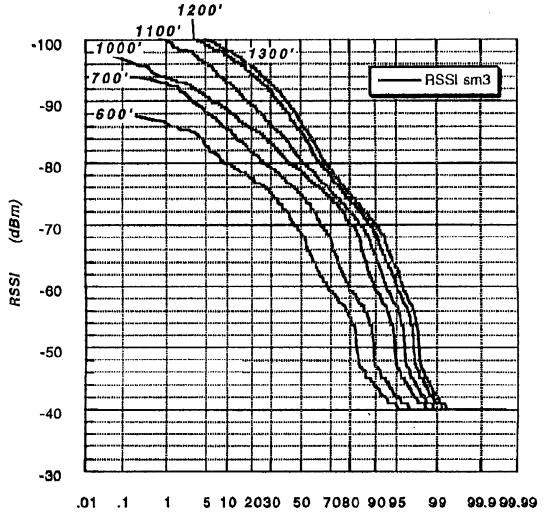




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# Signal Strength - Winter\*



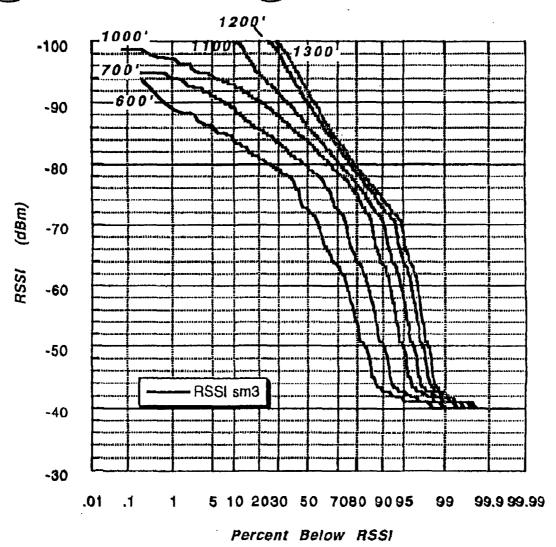


Percent Below RSSI

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\* Joint study with Motorola FCC Ex Parte - docket 94-32

# Signal Strength - Summer\*





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\* Joint study with Motorola FCC Ex Parte - docket 94-32

#### Summary of Propagation Studies\*

- Largest RMS delay spread 566 nsec
- Distance exponent of path loss 3.8
- Avg attenuation to interior of homes
  - 2.5 dB with std dev of 8 dB for above ground floors
  - 17 dB average attenuation into basements
- RMS delay spread doubles for each 19 dB decrease in signal level
- Foliage attenuation approximately 5 dB ( $\sigma \approx 10$  dB) at 1000 ft

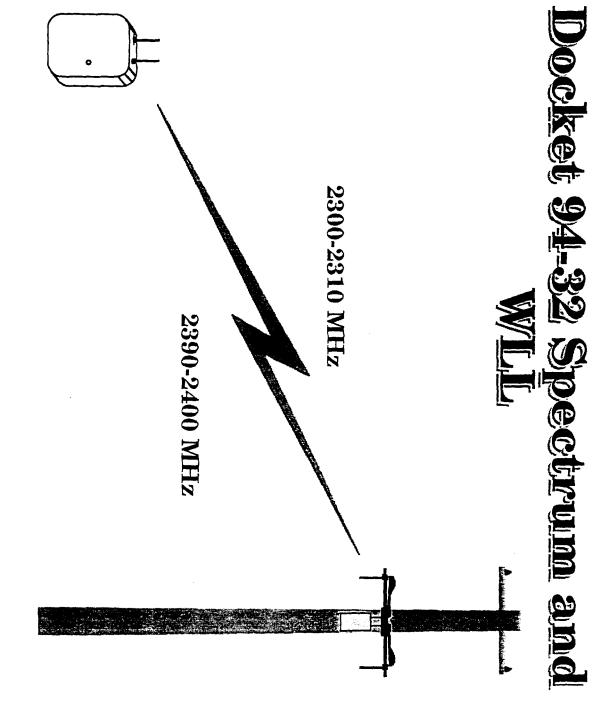


\* Delay spread work performed jointly with Bellcore

#### Experimental Plans

- Lab Prototype Equipment Received 9/93
- Propagation Testing 2/94, 7/94
- Testbed Equipment Received 8/94
- Testbed Operation 9/94 through 6/95
- Commercial Availability Summer 1995 (Motorola)





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# Key Points of SBC Comments

- SBC was nearly unique in suggesting a specific service in the reallocated bands
- The use of this spectrum for WLL is an appropriate use of the band and results in network efficiencies
- WLL will benefit all of SWBT's customers through controlling the cost of the PSTN infrastructure
- The 2300-2310 MHz and 2390-2400 MHz bands should be paired as a single FDD allocation for the use of LECs to provide WLL



# Key Points Continued

- Low antenna height and low power lead to high capacity and spectral efficiency
- Permits easier and cheaper rehabilitation of aging plant with less disruption to the customers
- The use of other bands in this docket would not be appropriate for WLL
- Other commentors support the paired frequency allocation and use of the band for local area systems



# Amateur Use of Spectrum

- SBC agrees that amateur use of spectrum is important
- The 2300-2310 MHz and 2390-2400 MHz bands are not yet heavily used except for "weak signal" use
- SBC proposes that if amateur use cannot be accomodated in another fashion, then: 2303-2305 MHz and 2393-2395 MHz be allocated on a primary basis to these "weak signal" uses with the remainder of the band exclusive to WLL

